DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 70.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-006989
Date Inspected: 29-May-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Japan Steel Works

OSM Arrival Time: 730
OSM Departure Time: 1630
Location: Muroran, Japan

CWI Name: Chung Fu Kuan
CWI Present: ☑ Yes ☐ No

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Tower, Jacking, and Deviation Saddles

Summary of Items Observed:

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

Machine Shop #4:

Machining Operation on Saddle: Tower Saddle Segment T1-1 (cast section welded to steel section)

The QA Inspector observed that tower saddle segment T1-1 is located in Machine Shop #4 to have the final machining performed. On this date, the QA Inspector observed that the interior of the south cable trough is being milled to final dimensions on the tower saddle segment.

Fabrication Shop #4:

Re-positioning of Saddle: Tower Saddle Segment T1-2 (steel section being welded to steel section)

The QA Inspector observed that JSW personnel completed the grinding operation around the radius of the cope holes after the partial-joint and complete-joint penetration groove weld operation was completed on the first side of the rib plate to base plate and stem plate to base plate double bevel groove tee and corner joint welds of tower saddle segment T1-2. The QA Inspector also observed that the JSW personnel completed the grinding operation on the welds that were completed on one side of the tee and corner joint welds to an acceptable profile for visual inspection. On this date, the QA Inspector observed that the JSW personnel were in process on re-positioning tower saddle segment T1-2 in preparation to change the location of the weld operation to complete the welding on the second side of the rib plate to base plate and stem plate to base plate double bevel groove tee and corner joint welds. The QA Inspector observed that the re-positioning of tower saddle segment T1-2 was in process at the end

of the QA Inspectors' shift.

NDT Operation on Saddle: Tower Saddle Segment T1-3 (cast section welded to steel section)
The QA Inspector observed Nikko Inspection Services (NIS) Quality Control (QC) NDT personnel Mr. M. Sato (#81) performing the ultrasonic test (UT) inspection on complete-joint penetration groove weld joint no. 9Y-5U-1, 9Y-5U-2, and 9Y-5U-3 prior to the intermediate post weld stress relief heat treatment operation on the rib (cast section) to rib (steel section) of tower saddle segment T1-3. The QA Inspector observed that the ultrasonic inspection was in accordance with AWS D1.5-2002 section 6.13 and to the UT acceptance-rejection criteria-compressive stress in Table 6.4. The QA Inspector observed that the UT inspection performed by Mr. Sato on tower saddle segment T1-3 was in process at the end of the QA Inspectors' shift.

Storage of Saddle: West Deviation Saddle Segment W2-E1 (cast section welded to steel section)
The QA Inspector observed that west deviation saddle segment W2-E1 is located in Fabrication Shop #4. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-E1.

Machine Shop #2:
Machining Operation on Saddle: West Deviation Saddle Segment W2-E2 (cast section welded to steel section)
The QA Inspector observed that west deviation saddle segment W2-E2 is located in Machine Shop #2. On this date, the QA Inspector observed that no machining was performed on west deviation saddle segment W2-E2.

Fabrication Shop #4:
NDT Operation on Saddle: West Deviation Saddle Segment W2-E3 (cast section welded to steel section)
The QA Inspector observed Nikko Inspection Services (NIS) Quality Control (QC) NDT personnel Mr. R. Kumagai (#132) completed the magnetic particle test (MPT) inspection (dry method) on the partial-joint penetration groove welds after the post weld stress relief heat treatment operation on the rib (cast section) to rib (steel section) and the stem (cast section) to stem (steel section) of west deviation saddle segment W2-E3. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-E3.

Grinding Operation on Saddle: West Deviation Saddle Segment W2-W1 (cast section being welded to steel section)
The QA Inspector observed that the JSW personnel were performing the grinding operation around the radius of the cope holes after the partial-joint penetration groove weld operation was completed on the rib plate (steel section) to rib (cast section) and stem plate (steel section) to stem (cast section) of west deviation saddle segment W2-W1. The QA Inspector also observed that the JSW personnel were grinding the welds that were completed on butt joint welds to an acceptable profile prior to Quality Control (QC) Inspector Mr. Chung Fu Kuan performing a visual inspection in accordance with the approved shop drawings and AWS D1.5-2002 section 3.6 (weld profiles). The QA Inspector observed that the grinding operation around the cope holes and on the butt joint welds were in process at the end of the QA Inspectors' shift.

NDT Operation on Saddle: West Deviation Saddle Segment W2-W2 (steel section)
The QA Inspector observed Nikko Inspection Services (NIS) Quality Control (QC) NDT personnel Mr. R. Kumagai (#132) performing the magnetic particle test (MPT) inspection (dry method) on the partial-joint penetration groove welds after the post weld stress relief heat treatment operation on the rib (cast sections) to rib (steel sections) and the stem (cast sections) to stem (steel sections) of west deviation saddle segment W2-W2. The

MPT inspection was in accordance with AWS D1.5-2002 Section 6.7.6.2 and to the acceptance criteria outlined in Figure 6.9. The QA Inspector observed that the MPT inspection was in process on west deviation saddle segment W2-W2 at the end of the QA Inspectors' shift.

Storage of Saddle: West Deviation Saddle Segment W2-W2 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W2 (cast section) is located in the Fabrication Shop #4. The JSW personnel completed the dimensional inspection of the rib (cast section) and stem (cast section) of the west deviation saddle segment in Machine Shop #2 to verify the location and dimensions of the ribs and stem against the approved dimensional drawings and assembly control lines. The dimensional inspection was performed prior to the fit-up operation of west deviation saddle segment W2-W2 (steel section). On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-W2 (cast section).

Re-positioning of Saddle: West Deviation Saddle Segment W2-W3 (steel section being welded to steel section)

The QA Inspector observed that JSW personnel re-positioned west deviation saddle segment W2-W3 in preparation of the weld operation on the stem plate (steel section) to rib plate (steel section) and rib plate (steel section) to base plate (steel section) partial-joint penetration double bevel groove tee joint welding and also for the JSW welding personnel to weld in a more optimal position. On this date, the QA Inspector observed that JSW personnel were preheating the west deviation saddle segment to 160 degrees Celsius prior to resuming the weld operation of west deviation saddle segment W2-W3.

Weld Operation of Temporary Fixture to End Splay Cover Plates: East Saddle E2-E1 and E2-W1

The QA Inspector observed JSW welding personnel completed the fillet weld operation on the temporary fixture-(reinforcing plates) located between the end splay cover plate stiffeners fit to the strong backs that are located on the back-side of the end splay cover plate per the SMAW and FCAW-G process in the (3F) vertical position on east saddle E2-E1 and east saddle E2-W1 end splay cover plates. The purpose of welding the temporary fixture is to hold the end splay cover plate stiffeners and end splay cover plate into position for distortion and dimensional control during the weld operation of the complete-joint penetration tee-joint groove welds of the (4) stiffeners welded to the end splay cover plate. On this date, the QA Inspector observed that no work was performed on east saddle E2-E1 and E2-W1 end splay cover plates.

Foundry:

Storage of Saddle: West Deviation Saddle Segment W2-W3 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W3 (cast section) is located in the Foundry Shop for storage until west deviation saddle segment W2-W3 (steel section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-W3 (cast section).

NDT Operation on Saddle: East Saddle E2-E1 (cast saddle)

The QA Inspector observed NIS QC NDT Personnel Mr. H. Kohama (#86) performing the ultrasonic test (UT) inspection on the rib section and trough section on the exterior of east saddle E2-E1. The UT inspection was performed in accordance with ASTM A609M to the acceptance quality levels in Table 2 of ASTM A609M. The UT acceptance quality level (1) is for within (30) mm of the exterior and interior surface for the full length of the trough as shown on the plans and UT acceptance quality level (3) for areas outside of (30) mm of the surface for the full length of the trough and rib sections as shown on the the plans. The areas inspected were marked with (300

x 300) mm grid lines on the exterior of the trough and rib sections for record purposes, identity, and guidance in scanning. The QA Inspector observed that the UT inspection was in process at the end of the QA Inspectors' shift.

Weld Repair Operation pending on Saddle: East Saddle E2-W1 (cast saddle)
The QA Inspector observed that the JSW personnel were in preparation of re-locating east saddle E2-W1 to an area for the start of the repair weld operation on the excavated areas on the exterior of the trough and rib sections. The JSW Representative Mr. Hideaki Kon informed the QA Inspector that JSW has submitted the major repair excavation map along with the proposed repair procedure as an engineering communication sheet (ECS) to American Bridge Fluor (ABF) for approval by the Engineer. Mr. Kon also informed the QA Inspector that JSW is preparing the minor repair excavation map for east saddle E2-W1. On this date, the QA Inspector observed that no work was performed on east saddle E2-W1.

NDT Operation on Rough Machined Surfaces of Saddle: West Jacking Saddle (cast saddle)
The QA Inspector observed that Nikko Inspection Services (NIS) QC NDT personnel completed the NDT on the rough machined surfaces of the west jacking saddle. The JSW Representative Mr. Hideaki Kon informed the QA Inspector that the west jacking saddle will be moved to an area for the JSW personnel to start the shaping operation on the exterior of the trough section. On this date, the QA Inspector observed that no work was performed on the west jacking saddle.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with the applicable contract documents.

Summary of Conversations:

No significant conversations were reported on this date.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, 510 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Peterson,Art	Quality Assurance Inspector
Reviewed By:	Guest,Kittric	QA Reviewer